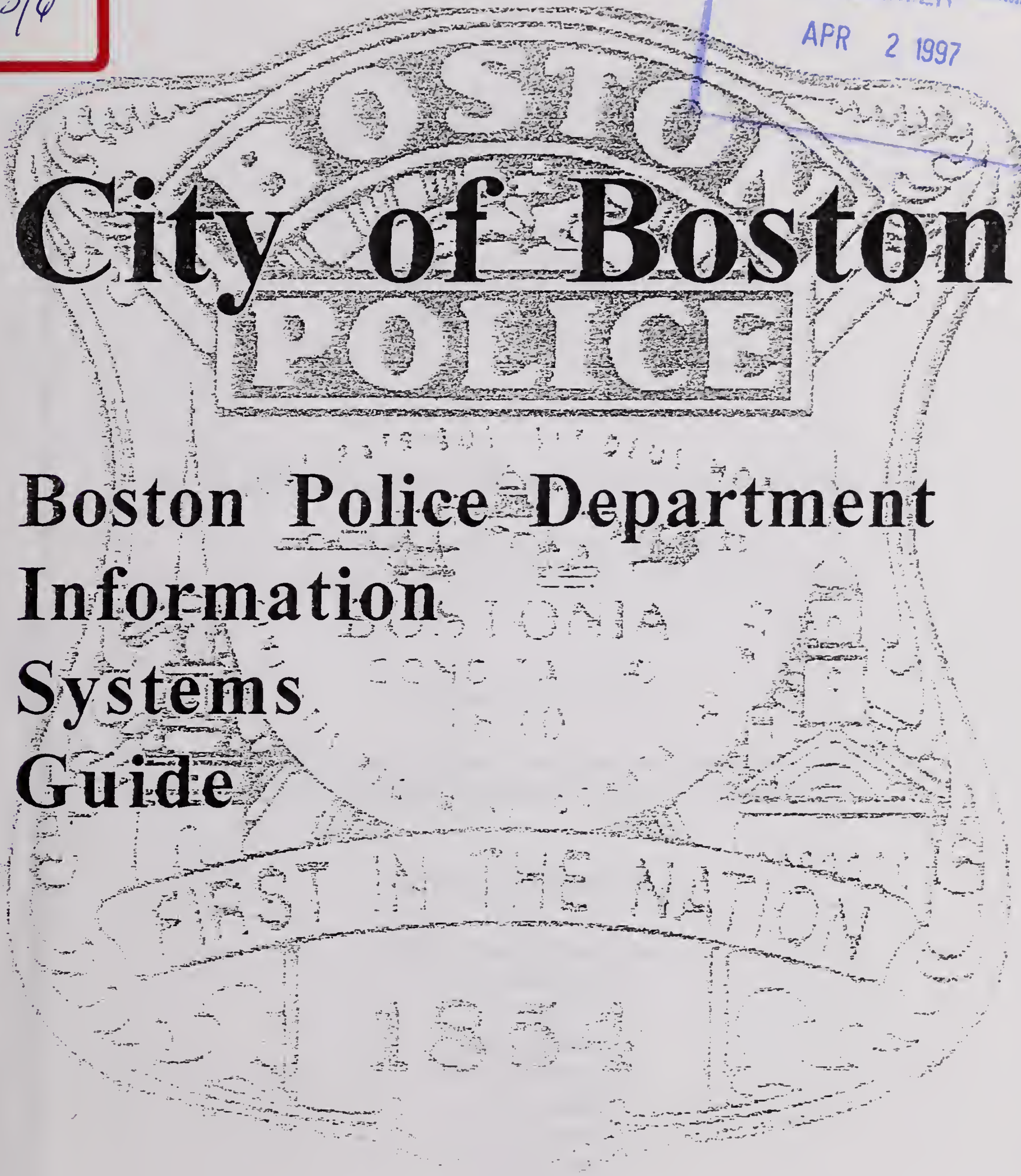
APPENDIX M



City of Boston

Boston Police Department Information Systems Guide

Management Information Systems
December 1993

Boston Police Department / MIS Information Systems Working Group

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Sector Reports

In addition to warrant reports, sector-based incident reports on selected crime types are provided in map and graph format. The map format overlays incident data geographically within each sector while the graph format provides a time-of-day trend analysis on targeted incidents. This additional information is distributed directly to the sector cars providing the officer-on-the-street with an up-to-date snapshot of activity in their assigned area.

Warrant System

The Warrant System application has been redesigned to improve on-line procedures and records management. Improvements to the system include: entering data only *once,* (instead of the current three times on two separate systems), better browse screens (that make records easier to locate), and a defendant alias name file referenced alphabetically that links to the defendant's original record.

The new system will automatically produce a hard-copy that simulates the current index card file and allows for reprints. A major improvement to the system will provide the ability to automatically route all warrants marked for the State Police LEAPS file directly to that system, through a direct-line link. The on-line link to the State Police will require additional time to coordinate the flow of data between systems. With the cooperation of the criminal history division of the Office of Public Safety the connection between the State and City law enforcement agencies will be improved and enable quicker input and access of vital information.

One of the advantages of this system is its ability to provide easier and faster access to this critical information. MIS staff rewrote the application to allow warrant information to be accessed directly in cruisers via Mobile Date Terminals. In addition to the before mentioned application enhancements, the Warrant Unit, as well as all BPD agencies in the D Street location, are now running on a Novell Local Area Network which has substantially increased the level of computer resources available to them.

Missing Persons System

The "Missing Persons" application will be designed using the "Warrant System" as a model. This will be the first time data will be captured for missing persons. This on-line system will provide faster access to this important data in the same manner as warrants are accessed.

Headquarters Network

The amount and availability of equipment at headquarters has been drastically increased during the past year. A strategic decision was made to redefine the role of the IBM AS/400 and to begin the migration towards Novell Netware 3.11 Local Area Networks. Through this philosophy, PCs become the standard workstation throughout the BPD, and any ancillary functions are provided through gateways into the LAN. In this way any mainframe, inter-LAN, AS/400, CAD, or Unix-based systems can be accessed utilizing industry-standard protocols with multiple vendor support.

District Networks

PC LANS have been installed in every district in the City as well the Academy and Special Operations units. Each LAN consists of 8-12 PCs, 2 laser printers, and a FAX gateway. In addition, any existing equipment in the districts has been added to the network where desirable and possible. Applications on the LANs currently consist of word processing, spreadsheet, presentation graphics, and electronic mail - i.e., standard office automation functions. All applications run under Windows 3.0 which provides a uniform user interface throughout the City. A Windows-based database package will soon be added to allow easy integration of local database into this environment. With these installations complete, practically every officer now has access to a computer. Upon completion of the Wide Area Network, each of these LANs will able to communicate with each other, as well mainframe and other remote information services.

Sperry Migration

The department currently maintains some administrative and other data on an old Sperry computer system. Some of the functions on the Sperry will be assumed by new BPD systems, and others will be transferred to more appropriate platforms. This will allow the department to scrap this equipment, save the money and time involved in maintaining it, and more effectively utilize the personnel now working on it.

Application Inventory

The City currently maintains many on-line applications that could be very useful to investigators. Some BPD personnel know about them, many do not. Access to systems such as Assessing department, House of Correction, Rent Equity board, could potentially save investigators hours of time and make available information that otherwise would not have been found. An inventory of such systems will be produced, and MIS staff will assist BPD personnel in obtaining clearance to use these systems as needed and technical support in doing so.

District Courts

The various district courts across the state are implementing a computerized records management system based on the AS/400 platform. Upon installation, the Courts will produce warrants and applications for complaints, among other things, solely in computer format. The Dorchester District Court is one of the first sites to be provided with this system. MIS and the courts are coordinating the methodology to link the Court systems with Boston Police. BPD Area C, in Dorchester, and the Warrant Unit will be the initial BPD units connected. This will allow officers to file applications for complaint directly via a remote PC, as well as inquire as to the status of warrants. The Warrant Unit will be receiving computer data on warrants via a telecommunications link rather than through the passing of mounds of paper. More timely, accurate, and accessible information will be available through this project. A future enhancement planned by the courts is the addition of imaging, so that computerized mug shots or incident reports could accompany the record. At this time MIS is waiting for implementation at state level.

ID Unit Integrated Database and Imaging Network

This state-of-the art system will maintain arrest and booking data, digital mug shots, fingerprints and voice for all arrestees. Not only will this significantly improve the operations of the ID unit, but will also be an excellent investigative tool and will form a core provider of data for a case management application. Mug shots will be available on an immediate basis, and will be accessed and printed citywide. The system can support multiple satellite booking sites, obviating the timely and costly transportation of prisoners to the ID unit. An ancillary benefit of the system will be to provide basic office automation capabilities to Technical Services divisions at Area D. Other potential uses include digitizing crime scene photos, and two-way, on-line transmission of data to state and federal agencies. Updated specifications are currently being drawn up in response to NeXT Computer's decision to discontinue its workstation line. A RFP was released and the Vendors responses are being evaluated.

Search Warrant/Informant Tracking

A custom application was developed to allow the Drug Control Unit to track and maintain information on their Search Warrants and informants. Due to the sensitive nature of this information all data is encrypted with multiple security levels required to access any information.

Crime Incident Report Maps

The Intergraph Mapping System maintains a core geographic database that captures all geographic information within the City. The mapping system is outlined by wards, city blocks, parcels and outlines.

Each week app. 85 maps are produced for Police Patrols by the MIS Mapping Unit (*see attached map*). The information is extracted from the Incident File system on the mainframe. Data is taken from specific types of crimes for each Police sector and the Reporting areas within them, and downloaded to a PC .

Maps are generated using the Intergraph mapping system for each sector in the City. The maps display geographical patrol sectors with the previous weeks criminal incident data. Police officers are then equipped with a map of their patrol sector that provides them with location, date, and incident type information that reflects recent criminal trends.

Future plans include capturing the data from the new Warrant system and providing maps to all patrol cars with locations and outstanding warrant data for their Reporting Area.

Intelligence System

A Wang VS65 is dedicated to the Intelligence Unity with Word Processing, a Field Reporting system and an Accession Name File system. These systems are text-oriented database-structured applications. Developed using a textual/numerical database package called BASIS, users can track large amounts of textual and/or standard data in record format. String, word proximity, "fuzzy", wild card searches are often used to find certain occurrences of characters, phrases, or "sounds-like" words which can be a useful tool when searching a large database for the number of occurrences of a single word in a free-text field.

Police Union Grievance

This PC application is designed to track information on Police Union Grievance for the Labor Relations unit. The tracking system maintains information on grievances, hearings, and arbitration dates.

Computer Training

A computer training center is being installed and is scheduled to begin operating on November 8, 1993. This center has ten student positions and an instructors position. Courses scheduled to begin are intro. to computers, Intro. to Windows and Intro. to Microsoft Word. Future classes planned are an Intro. to Excel and an Intermediate Word course.

☐ stack calls at the individual unit level;

☐ calculate time estimates so the 911 operator can notify the caller when to expect a police response;

☐ system monitoring of response time(s), the public will be called and notified when the responding unit is delayed.

An award was made to PRC, Inc in April 1993, with the first phase of installation expected to be completed by April 1994.

Drug Control Unit Inventory and Records

MIS assistance was requested by the Drug Control Unit in the acquisition of a minicomputer system that would support the management of their DCU Depository inventory and records. MIS representatives attended a demonstration of a system that would provide these functions. MIS staff wrote an RFP to purchase the system. Specifically, this system allows the DCU the capability to monitor it's evidence inventory and establish a standalone booking station that would be available to any officer. This capability saves a considerable amount of time, if the officers used the system to generate all of their booking paperwork and simultaneously entered most of the drug related information required by the DCU.

The compatible software has the following functional capabilities:

☐ arrest and booking
☐ property control
☐ electronic mail
☐ reports generation
☐ code files

Ballistics Unit

A customized inventory and tracking system was developed. The system will expand into a comprehensive inventory control system that will include property and evidence management.

New Police Headquarters Telecommunications Planning

Telecommunications will be assisting PFD and Capital Planning with the design specifications of the new Police Headquarters that is being planned. This assistance will ensure that proper conduit is installed for all communications systems as well as all other environmental conditions, including; power, space, HVAC, are properly designed and constructed for the department.

New CAD (Computer-Aided Dispatch)

In the past several years MIS has been intricately involved with developing a request for proposal (RFP) for a new CAD (Computer-Aided Dispatch) system for the Police and Fire Departments as well as Emergency Medical Services (EMS). Specifically, MIS was responsible for developing a RFP document defining the user specifications.

User specifications were defined by representatives from MIS and the Police Department and an RFP was written. The document version was reviewed and changed several times over the past months. This new system will also be designed to make the transition to the new headquarters building.

Specifications for the new CAD system require a turnkey integrated computer system to support more effective emergency dispatching, reporting, and management uses of the information collected via the emergency 911 service. The system will use the latest in hardware and software technology and be required to support the Department's newly implemented *DPR - Differential Response Strategy*. The new CAD system would enable the Police Department to service the public better providing:

- ☐ improved emergency response decision making;
- ☐ better deployment of resources;
- ☐ develop a comprehensive crime analysis program;
- ☐ provide a database used to implement a directed patrol

The new system as specified in the RFP will support non-DPR related dispatch activities, as is currently being done, with the capability to expand to an automated DPR system.

- ☐ prompt the operator with "key" questions to insure efficient information gathering at the 911 operator level;

Telephone Service - Conversion to Intellipath

The City has recently executed a contract with New England Telephone for Intellipath Centrex services. This contract provided for the upgrade of the existing Police Department centrex to the new Digital Intellipath Centrex. Within a 14 hour period Police Headquarters and all Neighborhood Area Police Stations were converted to the new Intellipath Centrex network.

The Intellipath upgrade provided these major improvements:

☐ 5-digit calling on a city-wide basis, eliminating any message unit charges that occur when other City departments are called.

☐ A new monthly line charge that will save the Police Department approximately 35% on the cost of line charges from New England Telephone.

☐ Establishing a new public safety telephone exchange (343).

☐ New telephone features improving communications and reducing costs. These features include: call waiting, conference calling, and class of service restrictions.

911 Upgrade

In the fall of 1990, the Telecommunications Office of MIS assisted PFD in the design of a secured conduit system for the new upgrade of 911 and the new CAD system to be installed in coordination with renovations at Police Headquarters.

The current 911 system is operating with a dated AT&T Horizon PBX. This system has repeated troubles, including actual down time for the 911 call takers.

The Police Department has been presented with a design for upgrading the 911 call taking system with an Automated Call Distribution (ACD) system. This technologically advanced ACD will provide the following improvements:

☐ Route the high volume of incoming 911 calls to available call takers equitably.

☐ Provide better management of incoming calls and call taker activity.

☐ Include a Systems Administrator terminal for tracking all calls and call takers, pro viding an improved overall management of the 911 system.

MIS is in the process of pursuing vendors to provide this ACD 911 system. As part of this project, New England Telephone will bring new cable with diverse routing into 154 Berkeley Street to feed the 911 turret. The new cable will provide more security to the 911 lines throughout the streets of the City. In the event of a cable cut, the diverse cable will continue to carry the 911 call traffic to Police Headquarters.

Telecommunications Equipment Neighborhood Area Police Stations

New telecommunications equipment installation has been completed at all neighborhood area police stations replacing antiquated telephone systems. MIS Telecommunications supervised and managed the installation and cutover of the 12 area stations and the Communications Center at Frontage Road, the I.D./Records on Warren St., and the training academy in Hyde Park.

This project encompassed the replacement of approximately 675 telephones, with new state of the art electronic key systems that have many advanced telecommunications features. The new telephone systems improve the speed for receiving and providing information. These new devices include the ability to page the called party through overhead speakers and let you access the call from the nearest telephone. All telephones are programmed with a speed calling feature allowing users to press one button and calls will be directed to frequently phoned locations of the department.

Cabling to each of the area stations was done using twisted pair technology for data as well as voice. This attribute will improve the data communications of the Police Department enabling all locations can utilize networks, both local and wide-area.

Overall, the installation of the new telecommunications systems will provide an estimated $195,000 in equipment cost savings for the Police Department over the first five years.

New Telecommunications System Boston Police Headquarters

Telecommunications has recently completed a major project that involved replacing all equipment and cabling for all divisions located at Police Headquarters. The new telecommunications systems features the latest technology and is custom designed to meet all users needs. Over 375 new phones were installed and new telecommunications services provided. A new data cabling system eliminated exposed bulky cable and modernized the data communications systems.

Time Management System

A batch reporting system relaying to supervisory officers how the officers assigned to them utilize their time has been recently instituted. By studying the reports, supervisors are able to better organize and assign non-patrol duties thereby increasing officer availability for patrol and community policing duties.

Sick Leave Tracking System

This PC based application was developed several years ago to track sick and vacation time records for police officers. Recently, modifications were made to improve the system. This application produces over ten different reports such as: monthly sick time by rank, unit, and name; personal and vacation accrued days; leave of absence information; and individual and monthly reports for all officers. It also tracks transfers and promotions.

Firearms Qualification System

This PC application was designed and developed by MIS to maintain and track information on firearm qualifications for all Boston police officers. All officers must maintain their qualifications for the weapons they carry. Different weapons require various qualification levels. This database allows Range personnel to automate this important information as well as maintain firing scores for all police officers. A modem allows transferring these files to the main training records group at the Academy.

Harbor Patrol Information System

A mainframe application was developed utilizing a data file from the United States Coast Guard for the Harbor Patrol. The file provides information on all U.S. documented vessels and includes owner name, type of vessel, registered city and vessel usage (recreational, merchant). The Harbor Master uses a PC that connects to the mainframe via modem to access this information. This system allows BPD personnel to access information on boats in a similar fashion to that routinely accessed on motor vehicles, and has greatly enhanced the Harbormaster's ability to enforce boating and harbor regulations. An additional benefit to the City is the increased excise tax revenues due to better owner information on boats and ships using Boston as their home port.

Repeat Call Analysis

It is axiomatic in policing that a small number of people/addresses account for a much larger share of emergency services than normal. In Boston's case, it was found that 60% of 911 calls were coming from only 10% of the addresses. To respond to this situation, a computer print out of the top call-generating addresses is produced each month. This information then allows officers to proactively approach the individuals involved and attempt to resolve the situation leading to the abnormally high rate of 911 calls. The most recent analysis shows a 10% drop in calls from the leading repeating locations - a significant savings in police resources.

Portable Computers

One of the more exciting technological developments recently has been the introduction of extremely slim (1.4"), paper-sized (8.5"x11"), and light (4.4 lbs.) personal computers. In addition to being incredibly smaller than previous portable PCs, the "notebook" PCs (named so due to their size) also have internal hard disks and relatively high-performance specs. There are many potential areas of utility in a police environment where mobility, discreetness, or field computing are necessary. Detectives, for example, who would not want an MDT in an unmarked car, could carry a database with them on a notebook PC for inquiry purposes. Currently, several notebooks are being used and evaluated in District C-11. The warrant file was downloaded to the portable computers, and MIS wrote an application allowing inquiries based not only on name, but Reporting Area as well.

Another new technology is pen-based computing, where an electronic pen is used on a portable computer's screen much like a regular pen is used on paper. One unit has been purchased by MIS to allow testing of this technology. Forms-based activity such as incident reports, or accident reports where a graphical description of the scene is important, could be beneficiaries of this new advance.

TIPS

The TIPS database was designed to handle and keep track of all tips received by the Drug Control Unit. The system has two databases that can be linked based on tips and arrests. There are over nine security levels built in for access to this database.

IBM AS/400 minicomputer

The computer environment at Police headquarters is variated due to the mixture of needs that must be addressed. The IBM AS/400 minicomputer, which replaced an aging IBM System 38 is a main component of BPD's non-dispatch related computing. The AS/400 minicomputer provides the following functions:

File Server - The AS/400 operates as a file server to accommodate several PC Local Area Networks (LAN's) within Headquarters.

Mainframe Connectivity - Used as a communication director from HQ to the City Hall mainframe, the AS/400 provides 3270 access and RJE capabilities computer via a high speed connection. This allows any AS/400 terminal or connected PC to access mainframe applications as well as the state computer network for LEAPS and other state-based databases. This ability will be shared with PCs in the districts as their networks are attached to a wide area network.

Communications Server - Allowing lan to lan connections citywide.

Computer Operations Support

The MIS IBM 3090 mainframe provides service to the Police Department around the clock, on a 24 hour seven days a week basis. MIS Computer Operations staff are working to cover this schedule. The Technical Support and Networking staff are on call so that they may respond to and resolve any problems that occur with computer hardware, software, or the physical plant.

Processing support available to the Police Department is separated by functions: on-line and batch. The on-line processing interacts with Boston Police as well as outside state and local law enforcement agencies such as LEAPS, NLETS, NCIC, ALARS, and CJIS, providing access to these outside databases. Capabilities include: Registry listing by registration number, Registry listing by VIN, registration by name and address, drivers license by name, address, social security number and date of birth, stolen firearms, stolen articles and warrants (Boston and nationwide).

The current batch processing systems are large reports processed for Warrants, Field Incidents, Geo file maintenance, Paid Detail, and Personnel. Transactions are performed daily for all the Boston Police on-line mainframe applications.

MIS staff are working with CJIS on a new interface that links the City's hardware and software with the CJIS system. Technical staff completed work on linking the (MDT's) Mobile Data Terminals to the mainframe, providing access to the Warrant file and LEAPS.

Mobile Data Terminals (MDTs)

Mobile Data Terminals (MDTs) are vehicle-installed terminals which provide access to mainframe applications. These applications may be resident on the mainframe itself (such as the Warrant system) or on another system linked to the mainframe such as the state LEAPS (Law Enforcement Agencies Processing System) at 1010 Commonwealth Avenue. The City currently owns 60 MDTs. Police officers with an MDT in their cruisers can now access both the Warrant system and LEAPS. With the advent of new mainframe based applications, MDTs will provide significantly more functions and utility to officers in the field.

MIS and BPD staff are currently researching the next generation of MDTs. One area of investigation is the use of new, "intelligent" MDTs which will be compatible with NCIC 2000 specifications. These are basically ruggedized PC devices, which support graphics and other high-end capabilities not currently possible under the Motorola 9100-11 terminals in use now. Some of these new units are also portable, allowing officers to bring them into a scene in order to perform warrant lookups, incident reporting, or access other databases from outside the cruiser.

Sexual Assault Unit

This unit is also the recipient of a customized case tracking application due to the unique nature of their cases. Full case management functions including victim, witness and arrest information is provided. Numerous reporting options are available which allow investigators to analyze case data in various manners. The system is multi-user and resides on a dedicated LAN segment.

Hackney Unit

The hackney Unit of the BPD is responsible for the licensing and enforcement of the City's cab fleet including owners, vehicles, and drivers. PC applications were written to automate the procedures involved in producing hackney driver licenses as well as track complaints and disciplinary actions against drivers and/or cab companies.

BET$

A version of a program used by many other City agencies - Budget Expenditure and Tracking System (BET$) - was created to assist BPD in managing the thousands of purchase requisitions and ancillary budgetary activities. Program and line item transactions are tracked and current budget status is maintained.

Stolen Vehicle System

The Stolen Vehicle system is a batch application that is executed nightly. This program matches license plate numbers of parking violations issued in Boston with stolen vehicles reported to the Police department. If the program finds a match on a plate number, a report is created for the Police department by area, district and street name. The Unit will use the report to investigate the incident. This system has been in use for several years.

Warrant Reports

Each week MIS creates a report matching outstanding warrants with Police Department sectors and reporting areas. The necessary data is downloaded from the mainframe for further processing on the PC. This report provides specific information on individuals such as: race, d.o.b., height, weight, hair and eye color and offense. This report is distributed to officers on patrol by sector as an aid to their community policing efforts. By having this data on-hand, officers are able to proactively serve warrants as well as be able to check an address for warrants while responding to a 911 call.

Bureau of Internal Investigations Case Tracking

A customized case tracking and investigative application was developed for this division. The system includes statistical reporting, historical analyses of cases and individuals, and produces several types of case-related correspondence. Due to the sensitive nature of this data, a dedicated PC local network was installed for BII's use alone.

Homicide Unit Case Tracking

The homicide unit, due to the specialized nature of its cases, will also be the recipient of a customized case management program. The system has been under development for two months now, and installation and training is expected to begin within a month. This system will replace two stand-alone systems with an integrated application that will be accessible on the Homicide Unit's portion of the LAN at D Street. The system will provide numerous reporting and case management functions to this most crucial investigative unit.

Detective Case Management

Above and beyond the specialized investigative units, detectives citywide are in need of a case management system. Working in concert with the CAD and ID applications, a citywide case management system would give each and every detective complete case tracking and management abilities. Installation of such a system would imbue the department with many capabilities that are impossible now. Included in these would be the ability to easily identify habitual offenders, particularly across Police districts; the identification of crime patterns; vastly improved investigative record keeping; increased supervisory abilities; enforcement of uniform record keeping across districts; basic and advanced reporting and statistical functions. The functional specifications of the system have been delineated, and acquisition of the system is planned to start in December 1993.

Wide Area Network

Most of the systems discussed in this document would not be as powerful, and many would be meaningless, without the ability to access and/or share information with other police districts, headquarters, or other City, state and national databases. The installation of a wide area network (WAN) will pull together the Novell LANs, the ID Imaging system, and CAD platforms into a virtual single network. When implemented, it will possible for an officer or detective to send electronic mail to another in a completely different district rather than just locally; CAD information could be accessed on-line through the LAN, as well as mainframe applications at City Hall or 1010 Comm. Ave. Design specifications are complete, and installation is scheduled to be coterminous with the CAD.

Boston Police Department Information Systems Projects

Paid Detail System

This on-line system enables the Details office to record details worked by police officers, create a preliminary and final payrolls and print checks for each officer's prior week details. The system also performs customer billing, complete accounts receivable functions, and management reporting for the Detail office. This application has been in successful production for several years.

License and Permit System

The Police Department administers various permits for the City. This system allows on-line access to any permit application processing, renewal of license, or premise violations. Five different permits are tracked by the system:

- ☐ licensed premise violations
- ☐ firearm permits
- ☐ license to carry
- ☐ special police licenses
- ☐ pawn shop permits
- ☐ special auto shop permits

False Alarm Billing

In an effort to curtail the number of false burglary alarms that the BPD is forced to respond to, a City ordinance was passed allowing the City to charge repeat violators. A mainframe system was developed to track such incidents and produce warning notices and bills. The most recent statistics show that there has been an 25% reduction in false alarm calls - in spite of the increasing number of alarms being installed citywide. This decrease in wasted trips and 911 calls directly increases the time officers can spend in more proactive, community-based policing activities. If a 25% decrease can be maintained an estimate of 11,292 hours will be saved this year.

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